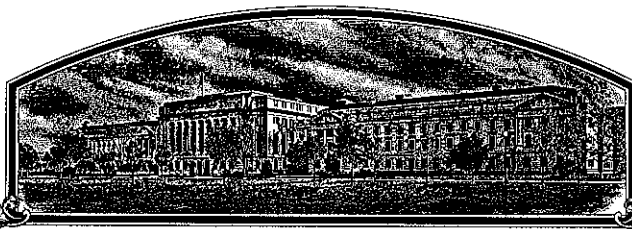


No.

9000012



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Western Plant Breeders, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT

'Express'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this 28th day of May in the year of our Lord one thousand nine hundred and ninety-three.

Attest

Kenneth Hoar

Commissioner

Plant Variety Protection Office

Agricultural Marketing Service

Mike Egan
Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) (as it is to appear on the Certificate) Western Plant Breeders		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NO. DA984-034	3. VARIETY NAME EXPRESS
4. ADDRESS (street and no. or R.F.D. no., city, state, and ZIP) 8111 Timberline Drive Bozeman, MT. 59715 6720 W. Chicago St. #4 Chandler, AZ 85226		5. PHONE (include area code) (406) 587-1218	FOR OFFICIAL USE ONLY VPPO NUMBER 9000012 Filing Date Oct. 16, 1989 Time 1:45 <input type="checkbox"/> A.M. <input checked="" type="checkbox"/> P.M. Filing and Examination Fee: \$250.00 Date Oct. 16, 1989 Certificate Fee: \$250 Date Apr. 23, 1993
6. GENUS AND SPECIES NAME Triticum aestivum	7. FAMILY NAME (Botanical) Gramineae		
8. CROP KIND NAME (Common Name) Common Wheat	9. DATE OF DETERMINATION May 2, 1988		
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) Corporation			
11. IF INCORPORATED, GIVE STATE OF INCORPORATION Maryland		12. DATE OF INCORPORATION Sept. 27, 1985	
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS Kim C. Shantz Western Plant Breeders, 227 South Smith Rd., Suite #104 Tempe, AZ 85281 PHONE (include area code): (602) 967-0028			

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow INSTRUCTIONS on reverse)

a. ☒ Exhibit A, Origin and Breeding History of the Variety.

b. ☒ Exhibit B, Novelty Statement.

c. ☒ Exhibit C, Objective Description of Variety.

d. ☐ Exhibit D, Additional Description of Variety.

e. ☒ Exhibit E, Statement of the Basis of Applicant's Ownership.

f. ☒ Seed Sample (2,500 viable untreated seeds). Date Seed Sample mailed to Plant Variety Protection Office Oct. 6 1989.

g. ☒ Filing and Examination Fee (\$2,150) made payable to "Treasurer of the United States."

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See section 83(a) of the Plant Variety Protection Act.)
☒ YES (If "YES," answer items 16 and 17 below) ☐ NO (If "NO," skip to item 18 below)

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☐ YES ☒ NO

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?
☐ YES (If "YES," through ☐ Plant Variety Protection Act ☐ Patent Act. Give date: _____.)
☒ NO

19. HAS THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETING IN THE U.S. OR OTHER COUNTRIES?
☐ YES (If "YES," give names of countries and dates) _____
☒ NO

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in section 41, and is entitled to protection under the provisions of section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT [Owner(s)] 	CAPACITY OR TITLE Wheat Breeder	DATE Oct. 6, 1989
SIGNATURE OF APPLICANT [Owner(s)]	CAPACITY OR TITLE	DATE 1

14.A 'EXPRESS'

8/14/90
 DA984-034 is a spring wheat selected from the cross Veery/BH1146. From the F₂ grown at Klamath Falls, Oregon in 1982 selected heads were bulked and the resulting F₃ was grown at Yuma, Arizona in 1983. Six head selections made from this bulk were planted as F₄ rows at Dixon, California in 1984. One head was selected from each row and was grown as an F₅ head row at Woodland, California in 1985. One row was bulked and was designated 8630034. 8630034 was yield tested in Davis, California 1986. 8630034 was then designated DA984-034 and tested in both California and Arizona in 1987, 1988 and 1989. Thirty two heads were selected from the F₈ bulk at Phoenix in May of 1988 and grown as head rows in Bozeman, Montana in the summer of 1988. Five non-segregating rows that appeared to have identical phenotypes were harvested and were planted separately as row plots in Phoenix, Arizona in 1989. All five row plots were found to be non-segregating and were bulked together to produce pre-breeders seed. This seed was used to produce one acre of breeders seed in Bozeman, Montana the summer of 1989. A variant that is similar to DA984-034 but is 3 to 5 inches taller occurs at a frequency of two per pound. No other identifiable variants have been found during the multiplication process. DA984-034 is a stable and uniform cultivar in agronomic appearance and performance across several generations and growing conditions. Agronomic data to support stability is presented in the tables.

A white kernel variant occurs at a frequency of 7×10^{-6} percent,
 AAA 7 Nov 1995 per letter



Western Plant Breeders

"Breeders of WestBred™ Varieties"

9000012

January 14, 1993

Mr. Alan A. Atchley
USDA/AMS/SD
Plant Variety Protection Office
10301 Baltimore Blvd.
Beltsville, MD 20705-2351

SUBJECT: PV Application No. 9000012, Wheat variety 'Express'

Dear Mr. Atchley:

The selection criteria that were used during the breeding of 'Express' were many and varied depending upon the stage of breeding. The selection criteria used up until the date of determination were high yield, high per cent protein, good test weight, good lodging resistance, semidwarf growth habit, acceptable flowering date, stripe rust resistance, leaf rust resistance, high yield under heavy Septoria tritici disease pressure and high sedimentation values.

'Express' can be distinguish from the variety 'Spillman' in that 'Express' is 5.7 inches shorter than 'Spillman'. (See table for t-Test) 'Express' is day length insensitive while 'Spillman' is day length sensitive. In 1992 at Phoenix Arizona, 'Express' headed on March 21, 1992 while Spillman headed on April 8, 1992. Grown at northern latitudes under long days, 'Express' and 'Spillman' have similar heading dates.

Enclosed please find one Exhibit C form for the variety 'Yolo' filled out by Western Plant Breeders. The breeder of 'Yolo' did not return a completed Exhibit C form even after several requests.

I believe this answers all of your questions and should allow the completion of the examination.

Sincerely:

Kim C. Shantz
Wheat Breeder

Enclosures: Exhibit C form
t-Test table

14.B 'EXPRESS'

25
8/14/90
DA984-034 is a day length insensitive, hard red spring wheat with an average height of 33.9 inches which is .4 inches taller than Yolo and 5.6 inches taller than Yecora Rojo. DA984-034 most resembles Yolo. DA984-034 differs from Yolo in that it has oblique glume shoulders while Yolo has elevated glume shoulders. DA984-034 has white colored chaff at maturity while Yolo has cream colored chaff at maturity. The head length of DA984-034 is significantly longer than the head length of Yolo. DA984-034 has significantly higher protein as well as much better baking characteristics than Yolo. The above comparisons along with the objective description (13C) show DA984-034 to be a novel variety of spring wheat.

U. S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, MEAT, GRAIN AND SEED DIVISION
BELTSVILLE, MARYLAND 20785

EXHIBIT C
(Wheat)

OBJECTIVE DESCRIPTION OF VARIETY

WHEAT (TRITICUM SPP.)

INSTRUCTIONS: See Reverse.

NAME OF APPLICANT(S)

Western Plant Breeders

ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)

8111 TIMBERLINE DRIVE
BOZEMAN, MT. 59715

FOR OFFICIAL USE ONLY

PVPO NUMBER

9000012

VARIETY NAME OR TEMPORARY
DESIGNATION

DA984-034 EXPRESS

8/4/82

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. or) when number is either 99 or less or 9 or less.

1. KIND:

1 = COMMON 2 = DURUM 3 = EMMER 4 = SPELT 5 = POLISH 6 = POULARD 7 = CLUB

2. TYPE:

1 = SPRING 2 = WINTER 3 = OTHER (Specify) 1 = SOFT 3 = OTHER (Specify)
2 = HARD

1 = WHITE 2 = RED 3 = OTHER (Specify)

3. SEASON - NUMBER OF DAYS FROM EMERGENCE TO:

FIRST FLOWERING LAST FLOWERING

4. MATURITY (50% Flowering):

NO. OF DAYS EARLIER THAN 1 = ARTHUR 2 = SCOUT 3 = CHRIS
4 = LEMHI 5 = NUGAINES 6 = LEEDS
7 = Yecora Rojo

5. PLANT HEIGHT (From soil level to top of head):

CM. HIGH
 CM. TALLER THAN 7. = Yolo
 CM. SHORTER THAN 1 = ARTHUR 2 = SCOUT 3 = CHRIS
4 = LEMHI 5 = NUGAINES 6 = LEEDS

6. PLANT COLOR AT BOOTING (See reverse):

1 = YELLOW GREEN 2 = GREEN 3 = BLUE GREEN

7. ANTHUR COLOR:

1 = YELLOW 2 = PURPLE

8. STEM:

Anthocyanin: 1 = ABSENT 2 = PRESENT Waxy bloom: 1 = ABSENT 2 = PRESENT
 Hairiness of last internode of rachis: 1 = ABSENT 2 = PRESENT Internodes: 1 = HOLLOW 2 = SOLID
 NO. OF NODES (Originating from node above ground) CM. INTERNODE LENGTH BETWEEN FLAG LEAF AND LEAF BELOW

9. AURICLES:

Anthocyanin: 1 = ABSENT 2 = PRESENT Hairiness: 1 = ABSENT 2 = PRESENT

10. LEAF:

Flag leaf at booting stage: 1 = ERECT 2 = RECURVED Flag leaf: 1 = NOT TWISTED 2 = TWISTED
3 = OTHER (Specify): Hairs of first leaf sheath: 1 = ABSENT 2 = PRESENT Waxy bloom of flag leaf sheath: 1 = ABSENT 2 = PRESENT
 MM. LEAF WIDTH (First leaf below flag leaf) CM. LEAF LENGTH (First leaf below flag leaf):

'EXPRESS'

Yield in lbs/acre of ~~DA984-034~~ and presently
grown cultivars in Western Plant Breeders trials

'EXPRESS'

<u>Location</u>	<u>Year</u>	<u>DA984-034</u>	<u>Yecora Rojo</u>	<u>Yolo</u>	<u>Tadinia</u>
Davis, CA	1986	5535	3265	4010	-
	1987	5708	5424	6369	6728
	1988	5684	6013	6496	5858
	1989	6738	7096	6945	6087
Phoenix, AZ	1987	6350	5250	5850	6700
	1988	5112	5184	6336	5670
	1989	6067	4902	5632	4506
Artois, CA	1987	6585	5869	5630	6346
Fresno, CA	1987	6670	5916	6235	5568
	1989	7031	6215	6664	5902
Corcoran, CA	1987	5040	5640	4620	5160
El Centro, CA	1988	6764	5349	6256	5222
Delano, CA	1988	6432	5904	6696	6312
	1989	5358	5032	6229	5236
Average		6077	5504	5998	

Σ
8/14/90

'EXPRESS'

Percent Protein of ~~DA984-034~~ and presently grown
cultivars in Western Plant Breeders trials.

<u>Location</u>	<u>Year</u>	<u>'EXPRESS'</u> DA984-034	<u>Yecora Rojo</u>	<u>Yolo</u>	<u>Tadinia</u>
Davis, CA	1986	14.2	14.3	12.6	-
	1987	14.3	12.6	12.1	11.8
	1988	13.0	12.2	10.5	11.5
Phoenix, AZ	1987	14.7	14.7	13.6	13.9
	1988	12.3	10.7	9.4	9.6
Artois, CA	1987	14.8	15.0	13.8	14.3
ElCentro, CA	1988	15.6	14.8	13.3	12.7
Delano, CA	1988	11.3	11.4	10.6	11.0
Average		<u>13.8</u>	<u>13.2</u>	<u>12.0</u>	

25
8/14/90

'EXPRESS'

Test Weight in lbs/bu of ~~DA984-034~~ and presently grown varieties in Western Plant Breeders trials.

<u>Location</u>	<u>Year</u>	<u>DA984-034</u>	<u>Yecora Rojo</u>	<u>Yolo</u>	<u>Tadinia</u>
Davis, CA	1986	63.6	61.4	61.7	-
	1987	65.4	66.4	66.5	64.6
	1988	65.8	66.0	65.8	64.5
Phoenix, AZ	1987	62.1	62.4	61.6	61.0
	1988	65.6	66.2	65.2	65.4
Artois, CA	1987	63.8	61.1	62.4	60.9
Delano, CA	1988	63.7	64.7	63.0	63.0
Average		64.3	64.0	63.7	

Σ
8/4/90

'EXPRESS'

Plant Height in inches of ~~DA984-034~~ and presently grown cultivars in Western Plant Breeders trials.

		'EXPRESS'			
<u>Location</u>	<u>Year</u>	<u>DA984-034</u>	<u>Yecora Rojo</u>	<u>Yolo</u>	<u>Tadinia</u>
Davis, CA	1986	35	28	36	-
	1988	38	31	36	38
Phoenix, AZ	1988	36	30	37	36
	1989	34	27	31	33
ElCentro, CA	1988	30	23	30	29
Delano, CA	1988	30	28	32	36
	1989	33	27	31	35
Fresno, CA	1989	35	32	35	37
Average		33.9	28.3	33.5	

27
8/14/90

'EXPRESS'

Date of flowering of ~~DA984-034~~ and presently
grown cultivars in Western Plant Breeders trials.

'EXPRESS'

<u>Location</u>	<u>Year</u>	<u>DA984-034</u>	<u>Yecora Rojo</u>	<u>Yolo</u>	<u>Tadinia</u>
Davis, CA	1986	3-25	3-18	3-30	-
Phoenix, AZ	1987	3-20	3-12	3-18	3-16
	1988	3-27	3-20	3-26	3-23
	1989	3-18	3-10	3-16	3-17

25
8/14/90

'EXPRESS'

Rust resistant ratings of ~~BA984-034~~ and presently grown cultivars in Western Plant Breeders trials.*

Leaf Rust

'EXPRESS'

Location Year ~~BA984-034~~ Yecora Rojo Yolo Tadinia

Davis, CA	1988	1	4	3	4
	1989	1	-	5	5

susceptible
check
WRP 9-5

Stripe Rust

Davis, CA	1988	0	0	0	0	6
	1989	0	1	0	0	9

* 0=none, 9=dead

8/10/20

'EXPRESS'

Septoria tritici disease rating of ~~DA984-034~~ and
presently grown cultivars in Western Plant Breeders trials*

'EXPRESS'

<u>Location</u>	<u>Year</u>	<u>DA984-034</u>	<u>Yecora Rojo</u>	<u>Yolo</u>	<u>Tadinia</u>
Davis, CA	1986	2.0	5.7	2.3	-
	1989	1.0	4.0	2.0	1.0

* 0=none, 9=dead

Σ
8/14/90

'EXPRESS'

Sedimentation values of ~~DA984-034~~ and presently grown cultivars in Western Plant Breeders trials.

'EXPRESS'

<u>Location</u>	<u>Year</u>	<u>DA984-034</u>	<u>Yecora Rojo</u>	<u>Yolo</u>	<u>Tadinia</u>
Davis, CA	1986	46	57	38	
	1987	83	69	67	57
	1988	68	74	51	46
Phoenix, AZ	1988	63	57	45	42
Artois, CA	1987	68	76	60	58
El Centro, CA	1988	67	75	57	62
Delano, CA	1988	69	62	57	54
Average		<u>66</u>	<u>67</u>	<u>54</u>	

ES
8/17/40

t-Test comparison of average percent
protein of ~~DA984-034~~ and Yolo

~~EXPRESS~~ ~~EXPRESS~~
x ~~DA984-034~~ = 14.0

x Yolo = 11.7

t with 30 df = $2.3/.5318 = 4.32^{***}$

*** Significant at .001 level

~~EXPRESS~~

~~DA984-034~~

Yolo

14.2	12.6
14.3	12.1
13.0	10.5
14.7	13.6
12.3	9.4
14.8	13.8
15.6	13.3
11.3	10.6
15.4	11.5
11.4	10.2
13.4	11.7
14.3	8.4
14.1	13.4
15.0	13.7
15.4	10.7
14.2	12.1
14.0	11.7

t-Test comparison of average head length
of ~~DA984-034~~ and Yolo.

— 'EXPRESS' 'EXPRESS'

x ~~DA984-034~~ = 10.3

— x Yolo = 7.8

t with 18 df = $2.5/.2458 = 10.17^{***}$

*** Significant at .001 level

'EXPRESS'

~~DA984-034~~

Yolo

11.1	cm	8.5
10.6		8.2
9.9		7.3
10.3		8.0
9.1		7.5
9.9		7.6
11.2		8.0
10.5		7.2
10.8		7.5
9.7		7.8

'EXPRESS'
 Quality Evaluation of ~~DA984-034~~, Yolo, Baker, and
 Yecora Rojo in the California Extension Trials. *

	<u>Flour</u>				<u>Mixograph</u>		<u>Baking</u>			
	yld	ash	mscr	pro	absr	ty	absr	mxt	lvol	bcr
Butte 1988										
'EXPRESS'										
DA984-034	70.8	.35	87.9	12.2	64.6	2H	66.3	2.2	931	5
Yolo	72.4	.36	89.0	9.7	60.1	3M	60.3	2.3	811	8
Baker	69.1	.36	85.7	9.7	63.2	4M	65.9	3.3	926	8
YecoraRojo	73.4	.36	90.1	10.3	63.2	4M	64.4	2.8	863	3
U.C. Davis 1988										
'EXPRESS'										
DA984-034	68.5	.36	85.4	12.1	62.7	6M	64.9	1.8	847	6
Yolo	72.7	.34	90.7	9.3	60.5	2M	61.2	1.9	810	9
Baker	71.2	.41	85.4	11.5	64.0	5H	65.7	3.1	869	2
YecoraRojo	72.5	.46	84.1	11.2	64.6	5H	64.3	3.3	838	4
Sacramento - San Joaquin Delta										
'EXPRESS'										
DA984-034	73.1	.33	91.6	13.3	64.7	2H	64.9	2.1	897	3
Yolo	74.4	.36	91.3	9.8	61.1	2H	60.8	1.7	889	9
Baker	72.9	.33	91.0	10.4	62.7	2M	61.9	1.3	847	8
YecoraRojo	74.3	.34	92.3	12.1	64.4	5H	66.1	4.0	887	2

* Quality analyses were performed by the:
 Western Wheat Quality Laboratory, USDA,
 Pullman, WA

yld= flour extraction percentage
 ash= flour ash percentage
 mscr=milling score
 pro= flour protein, 14% m.b.
 absr=absorption at 14% m.b. corrected to 11% protein
 ty= mixograph type
 mxt= mix time- optimum
 lvol=loaf volume (c.c.) corrected to 11% protein
 bcr= bread crumb rating, 1=excellent, 5=fair, 9=poor

14.E

Western Plant Breeders, Inc. is the employer of the breeder, Kim C. Shantz, and rightfully, therefore, the owner of ~~DA984-034~~.

'EXPRESS'

ES
8/14/80